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Out of the Woods: Crisis Management in Finnish National Parks

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Abstract

The objective of this thesis was to study the crisis management of Finnish national parks. In practice this involves assessing the possible crises that could actually occur in the national parks, how these could be prevented and, finally, what kinds of tools are used for managing these.

The theoretical framework of the study introduces crisis management, life-cycle of crisis and national park management. To get a closer look at the national parks, five case studies of different Finnish national parks were conducted. The chosen national parks include Archipelago National Park, Oulanka National Park, Pallas-Yllästunturi National Park, Patvinsuo National Park and Päijänne National Park. These parks were selected since they represent different locations, sizes, environmental features and, therefore, also potential crises.

The approach of the study is qualitative and the semi-structured interview was chosen as the main method of research. A representative of each selected national park was interviewed individually. The interviews resulted in five 29–55 minute recorded conversations which were subsequently transcribed for the purpose of analysis. The interviews were conducted in February 2011 and four of them were executed by Skype due to the long distances.

The key findings of the study reveal that various crises can occur in Finnish national parks if the circumstances are favourable and if no immediate actions are taken. Forest fires and various storms can threat all the parks, however, also animal attacks, avalanches and oil spills are potential risks in some of the parks. Many of the potential natural disasters, such as forest fires, are actually not considered crises without their impact on people or infrastructure. Tourism is also increasing in the national parks, thus it should be more closely considered since its negative impact is already visible in some parks. To avoid crises to happen, the importance of anticipation and communication together with co-operation with authorities as well as companies is highlighted. In conclusion, comprehensive planning is the key factor for being a step ahead vis-à-vis crises.

Keywords
crisis management, crises, national parks, environmental risks, nature tourism

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Tämän opinnäytetyön tarkoituksena on ollut tutkia suomalaisten kansallispuistojen kriisinhallintaa. Käytännössä siinä selvitettiin millaisia kriisejä kansallispuistoissa voi tapahtua, miten niitä voidaan estää ja minkälaisia työkaluja puistoilla on käytettävissään niiden hallitsemiseen.

Tutkimuksen teoreettinen viitekehys koostuu kriisinhallinnan teoriasta, kriisin elinkaaresta ja kansallispuiston hallinnasta. Syvällisempää tarkastelua varten toteutettiin viisi tapaustutkimusta suomalaisista kansallispuistoista. Valitut puistot ovat Saaristomeren kansallispuisto, Oulangan kansallispuisto, Pallas-Yllästunturin kansallispuisto, Patvinsuon kansallispuisto ja Päijänteen kansallispuisto. Nämä puistot valittiin, koska ne sijaitsevat eri puolilla Suomea, ovat erikokoisia ja niiden ympäristölliset piirteet vaihtelevat, ja siksi myös mahdolliset kriisit ovat erilaisia.

Tutkimus toteutettiin soveltaen kvalitatiivista lähestymistapaa ja käyttäen puolistrukturoitua haastattelua päämetodina. Jokaisen valitun kansallispuiston edustajaa haastateltiin yksitellen. Haastatteluiden tuloksena saatiin viisi 29–55 minuuttia pitkää nauhoitettua keskustelua, jotka litteroitiin myöhemmin analysointia varten. Haastattelut toteutettiin helmikuussa 2011 ja neljä niistä tehtiin käytäen Skypeä pitkien välimatkojen takia.

Tutkimuksen tärkeimmät löydökset osoittavat, että suomalaisissa kansallispuistoissa voi tapahtua monenlaisia kriisejä, jos olosuhteet ovat sopivat ja niihin ei reagoida välittömästi. Metsäpalot ja erilaiset myrskyt voivat uhata kaikkia puistoja, mutta myös eläimet, lumivyöryt ja öljyonnettomuudet voivat olla mahdollisia riskejä joissakin puistoissa. Monet luonnonkatastrofit, kuten metsäpalot, eivät itsessään ole kriisejä ilman, että ne vaikuttavat ihmisiin tai infrastruktuuriin. Myös matkailu kansallispuistoissa on kasvanut, mikä tarkoittaa sitä, että se pitää ottaa huomioon entistä tarkemmin, sillä joissakin puistoissa kävijöiden negatiiviset vaikutukset on jo huomattu. Kriisien välttämiseksi ennakoimisen ja tiedottamisen tärkeys korostuu, kuten myös yhteistyö viranomaisten ja yrittäjien kanssa. Johtopäätöksenä voidaankin sanoa, että huolellinen suunnittelu on avaintekijä, jotta ollaan askel edellä kriisejä.

Asiasanat
kriisinhallinta, kriisit, kansallispuistot, ympäristöriskit, luontomatkailu

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1 Introduction

Environmental issues and climate change are hot topics all over the world at the moment. Not only because the nature is threatened, but also the local people and tourists can be affected. Especially after incidents such as the massive tsunami on Indian Ocean 2004 killing over 230 000 people or the volcanic ash cloud in April 2010 that stopped basically whole air transport in Europe, people have become more aware of the power of the nature. But humans are also able to create crises in nature, take for example the toxic sludge in Hungary in October 2010 that killed basically all the life on its way. We are used to hear news all over the world about environmental catastrophes and crises, but what kinds of risks are threatening Finnish natural areas? The answer for this question and results of this bachelor thesis will offer some knowledge about Finnish ways of managing crises and risks in natural parks. It will also try to reveal the possible weaknesses and offer propositions how to deal with these issues. It offers some valuable information for actors developing natural parks, or for companies that are using these resources. There has not been a lot of research from this point of the view before.

Finnish national parks have a lot to offer for travellers who are looking for nature-based experiences, adventures or peace. Besides, they offer good opportunities for enterprises. On the other hand, these areas are vulnerable and the natural heritage is rich, which makes natural parks challenging areas to manage. In addition, something unexpected can always happen. Therefore one of the main questions is: "What kinds of crises can actually occur in Finnish natural parks?" When this key question has been answered, it is also possible to ask questions like: "How they can be prevented?" or "If happened, how they are managed?"

Bush fires, avalanches and oil spills on marine areas are some examples that can threaten natural areas. Different kinds of pollutions, invasive alien species or actions of humans can also be considered as risks. This research will be mainly focused on environmental crises that can affect the parks and tourism as well. One of the main goals is to research how the national parks in Finland act before, during and after a crisis and what kinds of tools they are using for this.

For understanding the crisis management in Finnish national parks it is also important to get familiar with some key concepts of the research. The chapter 2 covers the terms crisis and crisis management, which are the basis of this paper as they offer theoretical models which can later on be adapted on practical level as well. The following chapter discusses the theory of national parks in general and their management. Crisis management and national park management creates the main framework for this research on which basis also the interview questions have been built.

In chapter 4 the Finnish national parks are introduced and for a closer look, a case study of five different national parks from different areas (sea, forest, fell, mire and lake) is made and their possible risks and management are examined separately. The chosen parks are Archipelago National Park, Oulanka National Park, Pallas-Yllästunturi National Park, Patvinsuo National Park and Päijänne National Park. Choosing different kinds of parks to this research will give a deeper perspective and a possibility to compare diverse crises. The case studies are carried out through individual interviews. A representative of each of the chosen national park is individually interviewed and the material is then analysed, combined and compared by themes. The results are presented after the Methods chapter and divided into subchapters according to the interview questions. The results summarize the compiled material and then proceeds to the discussion of the key results in the Conclusion chapter, which also provides suggestions for further research.

The thesis is written to HAAGA-HELIA University of Applied Sciences. Part of this thesis, including the theory and case studies of Archipelago National Park and Pallas-Yllästunturi National Park, was also presented in International Tourism Student Conference (ITSC) in Faro, Portugal in April 2011. The conference paper together with the presentation was also awarded as the Best Paper of the conference.

2 Crisis and Crisis Management

Crisis management is one of the main aspects of this study. It is fairly actual topic in the world and on local levels at the moment and there is plenty of literature and researches available. It is also a subject that changes fast and more research, increasingly from tourism aspect as well. However, from the national park point of view there is less existing studies about crisis management.

2.1 Crises and Disasters

First of all, what is a crisis? According to Ritchie (2009, 4–5) there are various definitions depending on the author, but he has also identified some common key points: First of all, scale of damage seems to be a differentiating factor. Secondly, another key point in many cases is also the urgency and speed of dealing with the incident. Ritchie (2009, 4) also points out that in many definitions crisis is described as surprise, which is why a proactive approach to crisis management is important. On the other hand, besides the negative consequences, Glaesser (2004) also sees development possibilities in crises if managed on a right way.

Tourism crises usually share the same characters with any other crisis. However, some crises can be predicted and they are not necessarily very immediate, such as rising sea levels due to global warming. (Henderson 2007, 3.) The World Tourism Organization defines a tourism crisis as:

> Any unexpected event that affects traveller confidence in a destination and interferes with its ability to continue operating normally (World Tourism Organization 1998).

However, even though there are common points between crises, they can happen on different levels and, therefore, also levels of management need to deal with different crises. Defining the cause of a crisis helps to assess the impacts and severity of the crisis. Scale of the crisis usually varies from minor to major depending on the number of people implicated, costs and duration. It also depends on the scope of the crisis. (Henderson 2007, 5–6.)

Figure 1. Scope of crises (Henderson 2007, 6.)

Figure 1 illustrates the scope of the cries which can be divided into different levels. They can be local, national, regional and international. The lower in the pyramid the crisis is, the graver it usually is. These levels can naturally overlap with each other as for example pandemics have an effect on all the levels. (Henderson 2007, 5–6.) However, all the crises are also subjective. For example major floods in small region are not necessarily internationally significant but already one person dying can be a crisis for the family. (Gordon, R. 13.4.2011.)

Another term which is often associated with crisis is disaster. Faulkner (2001 in Ritchie 2009, 6) suggests that the main distinction between crisis and disaster would be that a crisis often describes a situation which is self-inflected, but disaster can be defined as an event of sudden change over which an enterprise has little control. Therefore, disasters are often linked to natural hazards. Disaster is often a result of a natural hazard's effect on humans and their living conditions. It leads to financial, material, environmental or human life losses, which can then cause a crisis. Even though the control of natural disasters is often out of human hands, it can be triggered by human activity. Naturally, the severity of the impact also depends about the vulnerability of the area. (Ritchie 2009, 7–8.) For example, if comparing the earthquakes in Haiti in 2010 and in

New Zealand in 2011, it is possible to notice factors such as poverty, higher number of people and conditions that made possible the outbreak of cholera epidemics, which made the case of Haiti many times more catastrophic.

2.2 Environmental Crisis

Henderson (2007, 4–5) divides crises in tourism into six different categories:

- Economic
- Political
- Socio-cultural
- Environmental
- Technological
- Commercial

In this research the focus will be on environmental crises because they cover most of the possible crises that can occur in national parks. Therefore, the following chapters will be focusing on environmental crises and explain them more closely.

Environment can comprehend all the surroundings of people but in this research it refers more to the natural environment which is used describing the natural elements of the physical environment such as climate, landforms or water (Henderson 2007, 87). When defining environmental tourism crisis, Henderson (2007, 100) summarizes it as "a crisis for the tourism industry originating in conditions in the natural environment".

Main crisis types can also be divided into external and internal threats of crisis. In terms of environmental crisis; natural phenomena, natural disasters, pollution and health scares are classified as external factors whereas overdevelopment and environmental degradation are seen as internal threats. (Henderson 2007, 5.)

Environmental crises can appear in various forms and could have negative impact on visitors and their visitation. For example, in a study of Impact of Bushfires on Tourism and Visitation in Alpine National Parks in Australia; Sanders, Laigh and Houghton

(2008.) classify the negative impacts of bushfires into four categories. These categories can be extended into other environmental crises, too. First of all, there are the safety and security issues which are probably one of the primary factors considering the tourism aspect. Another perspective is the health and aesthetic concerns. These could be for example respiratory problems caused by pollution. Destroyed natural beauty also decreases the attractiveness of a park. Third aspect is the loss of attractions and reduced recreational opportunities. For example fire can destroy infrastructure in a park and also lead to the fact that some areas must be closed. The fourth concern is decline in biodiversity and social values which can also affect the visitor experience. (Sanders, Laigh & Houghton 2008.)

A high-quality environment is the key element of tourism and many natural environments appeal tourists as attractions or settings for activities. If this appeal vanishes, and sometimes even leads to endangered personal safety, tourists may look for substitute destinations which they consider safer and more pleasant. Deterioration can be caused by sudden natural disasters or it can be more gradual such as pollution. On the other hand, tourism development itself can also cause an environmental crisis. Tourism activity can for example harm the delicate ecosystem and endanger biodiversity. (Henderson 2007, 87–96.)

2.3 Disaster Category Classification

Collecting data of disasters is important for understanding the pattern and for being more prepared for future disasters. To be able to collect disaster data around the world, there have been various global systems. For example Centre for Research on the Epidemiology of Disasters (CRED), Munich Reinsurance Company (Munich RE) and Swiss RE have all been gathering this information and compiling their own statistics. However, the problem of having multiple data sets is that the comparability obviously suffers. In order to improve this and the data quality, methods and definitions of disasters need standardisation. These are few of the key factors why "Disaster Category Classification and Peril Terminology for Operational Purposes" was born. It is created by CRED and Munich RE to provide a comprehensive overview of current global disaster databases. (Below, Wirtz & Guha-Sapirf 2009.)

In this classification disasters are divided into two main groups: natural and technological disasters. After, natural disasters are divided into six disaster groups: Biological, Geophysical, Meteorological, Hydrological, Climatological and Extra-Terrestrial. Each of these main groups contains different disaster sub-types and sub-sub-types (Attachment 1). This classification will be also used in this research as a framework for categorising possible threats in Finnish national parks, although with some alterations. This is due to the fact that some disasters, such as volcanic eruptions, are not geologically possible in Finland. Extra-Terrestrial along with some Biological disasters are also excluded because they are not seen relevant in this case. From Biological disasters, epidemic diseases (on humans) are excluded because they are not related to crisis management on national park level.

2.4 Crisis Management

In many crisis and disaster definitions there is an opinion that they are temporary and have a lifecycle, though, the length of the cycle can vary from hours to years. Various generic models for understanding the lifecycle of a crisis have been created to help the managers and researchers. The models have been developed from three-stage model concerning pre-crisis, crisis event and post-crisis. Even though random events are easy to fit into this model, it lacks the idea of fully understanding the crisis and the response of individuals and other actors. (Ritchie 2009, 44–45.) Therefore, many organisations are often using a four-stage model in crisis management which highlights four phases of crisis: prevention, preparation, response and recovery, often called PPRR (Hosie & Smith 2004). Figure 2 shows the relationship between the different elements in PPRR Crisis Management Model.

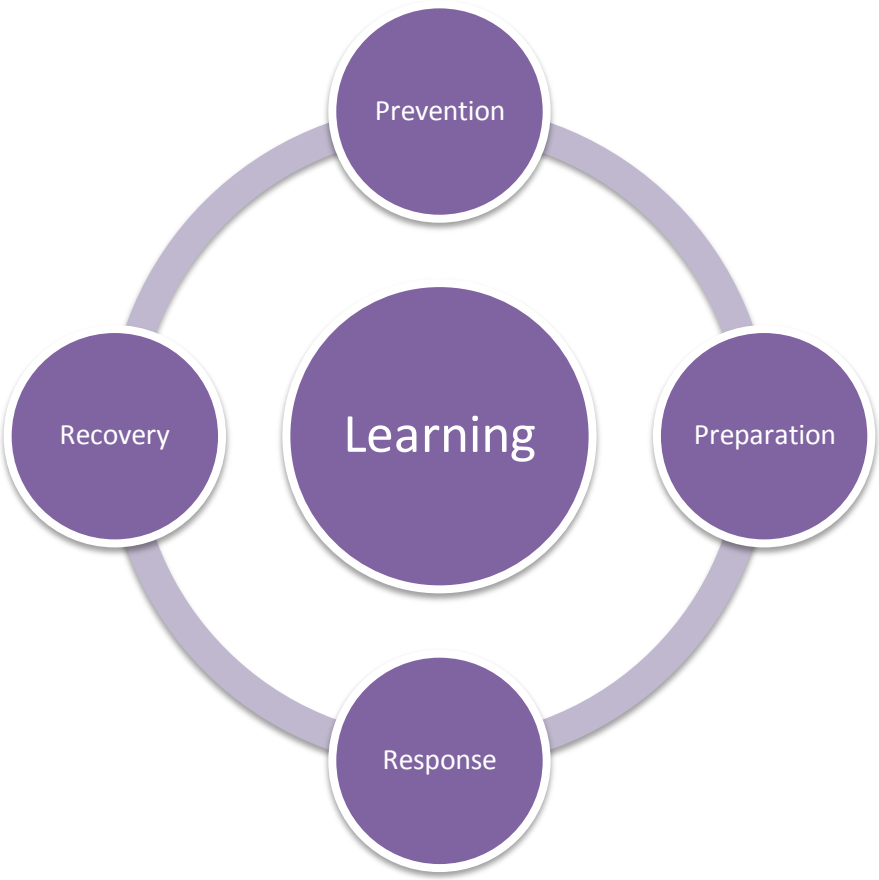

Figure 2. PPRR Crisis Mangement Model. (Hosie & Smith 2004.)

All of the phases of PPRR Crisis Management Model comprise different kind of actions to be able to minimize the risks, control possible crises and learn from them.

Prevention: The stage where planning, such as growth management planning and land-use planning, could be undertaken to reduce the probability of a natural hazard.
Preparation: Includes preparations for a possible crisis, such as preparation of emergency warnings and alertness to implement e.g an evacuation plan.
Response: The stage includes dealing with events immediately before and after they have happened, for example the actions to be taken to save lives and property.
Recovery: Includes the actions which need to be taken when trying to return to normal activity. These actions include for example repairing damaged structures, counselling victims and revisioning strategies, which could mean renewing a crisis plan that did not work out. (Ritchie 2009, 45–47.)

The model also highlights the opportunity for learning, which is an important aspect of crisis management. The flow of events can basically start from any of the stages. All the elements of the Crisis Management Model are interrelated and, therefore, have an essential relationship with the learning as well. (Hosie & Smith 2004.) These aspects can be applied to many facilities, infrastructures, organisations, and in this case, also national parks.

3 National Parks

For understanding national parks it is also fundamental to understand the features of their typical environment: wild areas and wilderness. Wilderness can have many definitions depending on the interpreter, but the concept has also changed a lot during the centuries. According to Judaeo-Christian view which has been dominant in western cultures, wilderness has in the beginning seen as an object of fear and contrast to the Paradise. The idea evolves from Adam and Eve's dismissal from the Garden of Eden into a cursed land, strengthening the thought of paradise and wilderness being physical and spiritual opposites. However, since the beginning of the nineteenth century, attitudes towards wilderness and wild areas began to become more positive under the influence of romantic movements which favoured wild nature as an antidote to increasing industrialism and technology. (Hall & Page 2006, 253–257.)

The development of designated wilderness areas started first in the United States and a bit later also in Canada, Australia and New Zealand. The American Romantic movement, roughly 1840 – 1865, praised in its art and literary the importance of being in contact with nature and consequently made the groundwork for appreciation of the value of wild land. However, the first reservations for the preservation of scenery were basically established on areas that were considered wastelands as they had no economic value in terms of agriculture, grazing or mining. The aesthetic value of wilderness was conserved by national parks and reserves which were meant to protect the national scenic monuments that represented the cultural independence of America, but also develop the area by gaining profit through the tourists. (Hall & Page 2006, 257–259.)

The World Conservation Union (IUCN) has classified protected areas into six different categories. The logic of this IUCN classification system, which is now widely accepted as the international standard for protected area, is that the lower the designated number of a site is, the lower the amount of environmental modification is acceptable.

Table 1. IUCN protected area categories (Eagles & McCool 2002, 19.)

Category	Designation	Description
Ia	Strict Nature Reserve	Protected area managed mainly for science
Ib	Wilderness Area	Protected area managed mainly for wilderness protection
II	National Park	Protected area managed mainly for ecosystem protection and recreation
III	Natural Monument	Protected area managed mainly for conservation of specific natural features
IV	Habitat/Species Management Area	Protected area managed mainly for conservation through management intervention
V	Protected Landscape/Seascape	Protected area managed mainly for landscape/seascape conservation and recreation
VI	Managed Resource Protected Area	Protected area managed mainly for the sustainable use of natural ecosystems

As can be noted from the table 1, national park's designated number is relatively low, which means that the area is supposed to be highly protected and relatively undisturbed. However, recreation is one of its primary objectives along the environmental protection. IUCN defines national parks as following:

> Natural area of land/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible. (IUCN in Weaver 2008, 66.)

3.1 Forms of Tourism in National Parks

Many dimensions of the natural environments are attractions for tourists, but at the same time tourism development and the use of these resources by tourism industry alters the appearance and character of the destination (Henderson 2007, 87). National parks provide good settings for example for various tourism activities. Activities in-

clude for example wildlife watching, hiking, skiing and cycling. In some parks it is also possible to go boating, sailing, canoeing, rafting, scuba diving and swimming or just enjoy the nature's bounty and fish, pick berries and mushrooms. All of these have different kind of impact on the nature and the park.

Natural area tourism is thought as one type of alternative tourism which is considered as an opposite for mass tourism. Natural area tourism is simply tourism in natural areas, however, there are many dimensions to tourism in natural environment, categorised according to the relationship of the activity and nature. Roughly, it is possible to divide natural area tourism into three different categories:

1. tourism **in** the environment (adventure tourism)
2. tourism **about** the environment (nature based or wildlife tourism)
3. tourism **for** the environment (ecotourism)

(Newsome, Moore & Dowling 2002, 12.)

All these share similarities but have different aspects of tourism, as the examples in the brackets indicate.

Adventure tourism is a good example of tourism in the environment. It is form of tourism that is focused on the activity but usually organised in natural environment. Adventure tourism often includes physical challenge, education and contact with nature. It can be small-scale tourism, such as bird watching and scuba diving, medium-scale and sport oriented such as canoeing and rafting or even large-scale tourism as safaris. (Newsome, Moore & Dowling 2002, 12–13.)

Nature-based tourism also takes place in natural settings but unlike in adventure tourism, the emphasis is on understanding and conserving the natural environment. The primary objective is the viewing of the nature, such as studying and observing fauna and flora but also rocks and landforms. It also fosters the sustainable approach and responsible tourism. It tends to be often small-scale tourism but can sometimes even become mass tourism which has already happened in many national parks, for example

in Yosemite National Park. Wildlife tourism is closely related to nature-based tourism but the living elements, such as flora and fauna or wild life are in the main role. Some visitors seek also information and education whereas some just want to be entertained. (Newsome, Moore & Dowling, 13–14.)

Ecotourism is primarily aiming at fostering sustainable tourism through resource conservation, cultural revival and economic development (Newsome, Moore & Dowling 2002, 14). Ecotourism can be defined in many different ways and there are actually no common guidelines what can be classified as an ecotourism activity. One of the often used definitions is:

> A sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature, and it is ethically managed to be low-impact, non-consumptive, and locally oriented (control, benefits and scale). It typically occurs in natural areas, and should contribute to the conservation or preservation of such areas. (Fennel 1999.)

According to Fennel (1999) and many others (e.g. Blamey 2001 in Weaver 2008, 7; Allcock et al. 1994) definitions ecotourism should contain at least following three main features:

1. It is a nature-based activity
2. Education or learning is somehow involved
3. It should be considered as sustainable activity

Ecotourism is often discussed in the context of national parks as they are considered as good sites for this kind of tourism. However, it is not always obvious that tourism in national parks is ecotourism because it does not necessarily fulfil all three requirements named above.

The concept ecotourism has evolved together with number of related activities, such as nature-based tourism, wildlife tourism, sustainable tourism and adventure tourism, which sometimes have been used as synonyms for ecotourism. Besides the blurry defi-

nition, this misuse increases confusion and misunderstanding, which leads to the fact that the term ecotourism is sometimes used only for marketing purposes even though the activity does not even fulfil the criteria. (Weaver 2008, 18.)

3.2 Management

Nowadays, the relation between conservation and tourism is becoming closer. Therefore many national parks are established not only for outdoor and adventure recreation enthusiasts, but they also provide a main resource for enhancing ecotourism. (Hall & Page 2006, 253.)

All the national parks agencies should have written policy, although in many parks there might be also unwritten policies developed during the time. A policy is a statement that guides the actions of the staff and provides information for all the stakeholders who are interested. Typically, the written policy outlines the goal for park visitation within a park system and within a specific park. (Eagles & McCool 2002, 282.)

Park management needs to take into account the relevant circumstances, goals and long-term sustainability of each individual park. In management, all the relevant elements must be considered: political, social, cultural, demographic and ecological environments. There are plenty of models to choose from. The ecological integrity has been usually the main philosophy in many park management models. However, this is being more diluted as managing agencies try to balance between stakeholders, visitors and financial regimes. This trend is appearing especially in those parks where the visitor appeal is strong and leads into management according to commercial rather than ecological principles. (Inglis, Whitelaw & Pearlman 2005, 12.) After all, the importance of nature tourism is becoming more and more important whereas the traditional forms of livelihood, such as agriculture are declining. Protected areas are becoming more responsible of both fostering tourism but also economic growth. (Eagles & McCool 2002, 187–192.)

4 Finnish National Parks

National parks are an important part of Finnish nature reserves. They consist of diverse natural features, impressive natural sights and also nationally and internationally valuable ecosystems. They preserve the precious natural scenery and biodiversity of Finland and therefore create a foundation for network of protected areas. In national parks different species, types of nature and traditional sceneries are preserved. National parks also provide information about nature and its protection for people. Many parks also have a visitor or nature centre which is a good start for an excursion. (Lappalainen 2001, 8–21; Metsähallitus 2010a.)

Nature has always been an important part of Finnish identity and livelihood. Sceneries have been inspiring artists throughout centuries and already in the first half of the 1800s places such as Punkaharju Ridge and Imatrankoski Rapids started to gain importance as tourist attractions. Therefore, it is no surprise that nature protection has long traditions in Finland. Important natural areas have been officially protected since 1843 by different actors. However, the first four national parks were established in 1938. These four were Pallas-Ounastunturi National Park, Pyhätunturi National Park, Heinäsaaret National Park and Stora Träsko in Porkkala National Park. Also six Strict Nature Reserves were established at the same time. Most of these protected areas were lost to Soviet Union in the Winter War of 1939-40 and Continuation War of 1941-44 as they were situated in north-eastern Lapland. Pallas-Ounastunturi and Pyhätunturi were not lost and they are still part of Finnish national park network. The area of Stora Träsko in Porkkala is now a part of a nature reserve but not a national park, as it does not meet the IUCN national park size standards. (Metsähallitus 2010b.)

About 9% of Finland is protected by the Nature Conservation Act or the Act on the Protection of Wilderness Reserves. Most of the protected areas in Finland are also part of EU's Natura 2000 network of protected areas. (Ministry of the Environment 2011.) Protected areas can be either state-owned or privately-owned lands, but most of them are situated on state land. Besides the national parks there are also other forms of protected land in Finland. Nature reserves, wilderness areas and hiking areas are also part

of Finland's nature protection network. The Finnish Government has approved nature conservation programmes that cover national parks and strict nature reserves, mires, bird wetlands, eskers, herb-rich woodland, shores and old-growth forests. All of these programmes have their own specific aims. (Metsähallitus 2010c; Ministry of the Environment 2011.)

At the moment there are 35 national parks in Finland and their combined area is 8,853 sq. km. (Picture 1.) All the national parks are managed by Metsähallitus (Board of Forestry). It is a State-owned enterprise in the administrative sector of the Ministry of Agriculture and Forestry. In nature conservation matters, though, Metsähallitus is steered by the Ministry of the Environment. (Metsähallitus 2010d.) All the national parks are functioning under the Natural Heritage Services (NHS) by Metsähallitus and are divided into three regional units. All in all NHS includes four processes: Protected Area Management Planning, Game and Fisheries, Nature Conservation and Recreation. (Metsähallitus 2010e.)

An important feature of Finnish recreation and tourism in nature is so called everyman's right. In Finland and in the other Nordic Countries everyone has a free access to natural areas and have an exceptionally wide right to roam and take advantage of nature's bounty, even on private land. (Ministry of the Environment 2011.) Therefore, in Finland also the national parks are open to everyone without entrance fee. Anyone can enjoy the peace and different kinds of landscapes of Finnish nature. According to a study conducted in 2006, landowners, hikers and authorities agree that everyman's right is working well and causing only few problems. The study was commissioned by the Ministry of the Environment and conducted by Suomen Latu and Ulkoilufoorumi. Most problems related to everyman's right arise when everyman's right are exceeded either through ignorance or indifference. The largest problems mentioned were unpermitted or wild off-road driving, snowmobiles, littering and letting dogs off the leash. (Ministry of the Environment 2007.)

Figure 3. Finnish national parks (Metsähallitus 2011a.)

As can be noted from figure 3, national parks are situated all over the country and therefore include a lot of different type of nature and scenery. There are marked trails for hikers which range from easy to demanding. Some parks can be walked from other end to the other in couple of hours when in larger ones it is possible go wilderness trekking for days. (Metsähallitus 2010a.)

The next chapters will describe more closely five national parks in Finland and in this paper the focus will be on these parks. They all represent different kind of locations, environments and variety of species. Lappalainen (2001) in his book *Suomen kansallis-puistot – ulapalta paljakalle (Finnish National Parks – From Open Sea to the Fells)*, divides

Finnish national parks in five categories and the choice of the five parks has been made according to this division: sea, mire, lake, forest and fell. Archipelago National Park represents sea areas whereas Patvinsuo National Park is a typical conserved mire area. Päijänne National Park is an example from Finnish Lake District. Oulanka and Pallas-Yllästunturi national parks represent the northern nature, Oulanka National Park being forest type and Pallas-Yllästunturi known for its fells. Also the size of areas and number of visitors vary a lot in between these parks (Table 2).

Table 2. Number of visits in chosen national parks in 2010. (Metsähallitus 2010f.)

National park	**Number of visits**
Archipelago National Park	59 000
Oulanka National Park	169 000
Pallas-Yllästunturi National Park	436 000
Patvinsuo National Park	12 000
Päijänne National Park	13 500

As can be seen from the table 2, the number of visitors vary from 12 000 to 436 000 visitors per year which also creates different kind of pressures through tourism for the environment.

4.1 Archipelago National Park

Archipelago National Park is located in the Southwest Finland Region and includes an area of 500 sq.km. The national park was established in 1983 and is managed by Metsähallitus. Archipelago was created during the Ice Age and imprints of this can still be seen in the typical characters of the park: rugged rocky islets, forested islands and naturally the open sea. Figure 4 shows the typical bare characters of the outer archipelago. Today, the national park includes more than 2000 islands and islets. Archipelago National Park mainly consists of the outer archipelago where the typical landscape is windswept pine forests and bare rocky islets. However, large sea areas, brackish water, bare islets and herb-rich forests together create a habitat for diversity of plant and ani-

mal species. A special feature for Archipelago National Park is also the traditional agricultural scenery. (Metsähallitus 2010g.)

Figure 4. Rocky shores of Archipelago National Park. (PAN Parks 2011a.)

The park consists of both water and land and it also forms the core area of the large Archipelago Sea Biosphere Reserve, which was established in 1994 by UNESCO. The area was established to promote sustainable development and balance between human and nature. (Metsähallitus 2010g.) Archipelago National Park is also a part of the PAN Parks network, which is a European-wide organisation focusing on the protection of wilderness and sustainable tourism development. The certification is based on principles covering relevant wilderness protection, social, economic and cultural aspects. (PAN Parks 2011b.)

In Archipelago National Park it is possible to walk for example on short marked nature trails. However, as the main feature of the park is the sea, it is natural that canoeing, sailing and motor boating are popular activities as well, and actually the only way to get around in most of the park. (Metsähallitus 2010g.)

4.2 Oulanka National Park

Oulanka National Park comprises an area of 270 sq.km in the North Ostrobothnia and the Eastern Lapland, ending at the Russian border. The park was first established in 1956 but it has been enlarged in 1982 and 1989. Oulanka is an excellent hiking destination in Finland including a popular Karhunkierros Hiking Trail ("Bear Trail"), which

includes altogether 97km of marked trails. Some of Oulanka National Park is a mix of southern and northern contrasts together with features from Siberian taiga, which create a unique landscape of pine forests, river valleys, sandy banks and rapids (see figure 5). (Metsähallitus 2010j.)

Figure 5. Rapids of Oulanka National Park. (PAN Parks 2011c.)

Besides the network of hiking trails Oulanka National Park is also known for its rivers and rapids which provide good opportunities for activities such as rafting and canoeing. The national park is open all year round and has marked ski tracks as well. (Metsähallitus 2010j.)

The most known rapid is Kiutaköngäs but there are also other well-known rapids such as Jyrävä and Taivalköngäs. Every spring these rapids flood imposingly which is also vital for surrounding nature like meadows. Oulanka National Park also has the certification of PAN parks. (Lappalainen 2001, 110–115; Metsähallitus 2010j.)

4.3 Pallas-Yllästunturi National Park

Pallas-Yllästunturi National Park in the Western Lapland Region is one of the oldest national parks in Finland and it is also the third largest national park with an area of 1020 sq. km. Pallas-Ounastunturi National Park was already established in 1938 (Lappalainen 2001, 149.), but in 2005 it was combined with Ylläs-Aakenus Nature Reserve

which doubled the size of the park. The name was also changed to Pallas-Yllästunturi National Park, how it is known today. Geologically the area is situated between Northern Finland, Forest Lapland and Fell Lapland. Typical scenery for Pallas-Yllästunturi is fells surrounded by forests and mires. The Chain of fells begins from Ounastunturi Fells in the northern part of the park and continues to the south until Yllästunturi, which is not actually inside the national park since it is used as a ski resort centre. The highest point of the whole fell chain is Taivaskero Fell which rises up to 807 metres. The top of the fells are not sharp after thousands of years of erosion, but rather gently sloping as can be seen in figure 6. The silhouette of these fells is well-known in Finland and it is not a surprise that the beautiful Pallastunturi Fells have been picked as one of the Finnish national landscapes. (Metsähallitus 2010k.)

Figure 6. Pallastunturi Fells during the winter. (Metsähallitus 2010k.)

Pallas-Yllästunturi National Park provides good opportunities all year round for outdoor activities such as hiking and skiing because of the varying ground, clearly marked trails and simply natural beauty. But the park also has a traditional aspect to offer. The area has been used for reindeer herding since 17th century and at the moment there are reindeers of three paliskuntas (cooperative of reindeer herdsmen) living at the park area. However, the reindeer husbandry has left its mark on the national park nature, too, as large stocks have partly eaten away the covering of lichen and mosses. (Lappalainen 2001, 149.)

4.4 Patvinsuo National Park

Patvinsuo National Park is located in Eastern Finland in the Region of North Karelia. The size of the area is 105 sq. km and it was established in 1982. The national park is an internationally important mire conservation and research area. In wet areas the hikers also need duckboards to cross the mire (Figure 7.) Besides the vast mires there are also old-growth forests, waterways and wilderness-like landscape. (Metsähallitus 2010h.)

Figure 7. Duckboards across the mire in Patvinsuo National Park. (Vaellus ja Retkeily 2011.)

Generally, the area is ideal for one or two days hikes but the hike can be also extended beyond the national park onto Karelian Circuit Hiking Trail. Patvinsuo National Park is an important habitat for great wild beasts such as wolves, wolverines, Eurasian lynxes and bears. The bear is also the symbol of the park. However, the beasts usually tend to avoid people. On the other hand, beavers and especially their dams can be noted almost in all the streams of the park. Also many birds, such as swans, cranes, geese and tetraonids, enjoy Patvinsuo's unique environment and it is possible to observe them for example from the Teretinniemi bird-watching tower. (Metsähallitus 2010h.)

4.5 Päijänne National Park

Päijänne National Park is located in the Päijät-Häme Region in the southern part of Lake Päijänne, which is the second largest lake in Finland. The park was established in 1993 and consists of about 50 uninhabited small islets and bigger islands, creating an area of 14sq.km protected land. Typical sceneries for this area are sandy bays, steep cliffs and rocky and sandy eskers. A dominant feature of Päijänne National Park is obviously the presence of the lake and in fact most parts of the national park are only accessible by boat. Therefore it is popular destination, especially among people with canoes or boats. (Lappalainen 2001, 76 – 79.)

Figure 8. Pulkkilanharju is part of Päijänne National Park. (Asikkalan kunta 2011.)

Kelvenne – the heart of Päijänne National Park – is 8 km long esker island in the middle of the park. The island offers a nature trail but also good facilities for camping and it is popular especially among people with boats. Another well-known sight is Pulkkilanharju Ridge (figure 8), which consists of chain of esker islands. (Metsähallitus 2010i.)

5 Methods

Hirsjärvi, Remes & Sajavaara (2008, 130–131) divide research strategies roughly in three different categories:

- experimental research
- quantitative research (survey research)
- qualitative research (case study)

Even though these strategies do not exclude each other, I have decided to choose only one to avoid the confusion and to restrict the size of the research material. In this paper the qualitative research is used as a main method.

5.1 Qualitative Research

Qualitative research is typically used in a research that aims to understand the examined phenomenon and finding the comprehensive and deeper meaning of it. It is usually thought more flexible than quantitative method as in qualitative method the focus is on people – in their thoughts, feelings and motives. (Hirsjärvi et al. 2008, 160.)

Silverman (2010, 118) states that a qualitative research rather answers to the question "how" than "how many". In my case the main question to be asked is: "How the Finnish national parks manage their crises?" Besides this, the sub-questions like "What kinds of crises can occur in national parks?" or "How they can be prevented?" indicate that the used method needs to give more detailed and describing answers than just numbers or statistics. Similarly, it is important that the objects are picked intentionally, not according to random sampling (Hirsjärvi et al. 2008, 160).

Generally, qualitative research is often associated with inductive reasoning. In practice it means that the basis for the research is not to test an existing theory but detailed analysis of the material. (Hirsjärvi et al. 2008, 160.) On the other hand, qualitative research is always subjective as the material is often gained from people and the way of collecting is usually not standardized. Another problem might be that there is too

much material to analyze and the study will end up shallow. (Silverman 2010, 117–121.) To avoid this it is important to define strict limits for the research and for the questions to be explained.

Choosing the qualitative aspect in this research is also both a product of a personal taste and a feeling that this method best suits the research of the themes that I am interested in.

5.2 Semi-structured Interview

Methods, in which the aspects of the objects are visible, are typical in qualitative research. These could be for example semi-structured interview, observation, focus-group interview or documentary analysis. (Hirsjärvi et al. 2008, 160.) In this paper the focus will be on semi-structured interviews combined together with analysing theme related literature.

Semi-structured interview is a type of an interview that can be considered as a mixture of survey and unstructured interview. In practice it usually means that the questions are mutual for all the interviewees but answers are not dependent on specified answering options. (Hirsjärvi & Hurme 2004, 47.) In my opinion, this procedure will support my intentions as before the interviews it is not quite sure yet what kind of answers I can be expected, and hence, a flexible method is a necessity. However, questions can be still planned around the same theme. On the other hand, the fact that the nature of these chosen national parks is not the same, needs to be taken into account. Therefore, the structure for the interviews is the same for all the interviewees but in the interview situation there need to be a marginal for different answers.

Due to the many definitions of crisis management, the interviewees are asked how they first of all define the term crisis management themselves. The natural parks are also located on different kinds of environments and contain diverse nature, so it will be important to know what kinds of crises each national park consider possible. The main part of the interview consists of questions based on the PPRR Crisis Management Model that illustrates the cycle of the crisis. The structure of the interview is designed

around the same themes as in the model. Interviewees are asked about prevention, preparation, response and recovery of crisis. Learning is also an important aspect and through the interview I am hoping to get practical examples of already happened or possible crises in national parks, which will also give more concrete perspective for the research. See the interview questions in Attachment 2 and 3.

5.3 Conducting the interviews

One person from each of the chosen five parks was interviewed individually. Interviewees were purposefully picked on the basis that they need to be familiar with park planning, management or maintenance. My first attempt to get in contact with the representatives of the national parks was at Helsinki MATKA 2011 Travel Fair in January. However, I did not personally meet anyone from the national parks but received contact details from Oulanka National Park and Pallas-Yllästunturi National Park. I approached the persons by e-mail and managed to settle an interview with a Senior Planning Officer from Oulanka National Park. From the contact person of Pallas-Yllästunturi National Park I received the contact details of the Park Manager to whom I called and managed to set a date for the actual interview. The rest of the parks I approached through the visitor centres of these national parks and got contact details of Senior Planning Officer in Archipelago National park and Park Superintendent of Päijänne National Park. I did not get answer from Patvinsuo National Park so I decided to look for the details of the Park Superintendent from the Internet sites of Metsähallitus and succeeded to settle an interview with him. In table 3 it is possible to see all the interviewees of the national parks, their tasks within the organisation, date and place of the interview and also the length of the interview.

Table 3. Conducted interviews. (Own illustration based on the interviews.)

National Park	Interviewee	Tasks	Date and place	Length of the interview
Archipelago National Park	Senior Planning Officer of nature conservation department	Coordinating team which take care of planning, mapping, nature conservation in practice and inventory.	7.2.2011 by Skype	00:55:25
Oulanka National Park	Senior Planning Officer of recreational department	Being responsible for planning especially in issues related to camping and tourism	4.2.2011 by Skype	00:47:32
Pallas-Yllästunturi National Park	Park Master	Being responsible for the maintenance and repairs of the infrastructure such as buildings, other structures and tracks	11.2.2011 by Skype	00:48:31
Patvinsuo National Park	Park Superintendent	Coordinating and managing nature conservation and recreational matters such as infrastructure, guiding and cooperation with entrepreneurs.	11.2.2011 by Skype	00:29:11
Päijänne National Park	Park Superintendent	Organizing and managing general matters regarding tourism, customer service and nature conservation. Being the window of the organisation.	9.2.2011 in Metsähallitus office in Hämeenlinna	00:53:34

Although the interviewees are in this study representing only one park, as a matter of fact, all of them, excluding the Park Master from Pallas-Yllästunturi National Park, are also responsible of other national parks, national hiking areas and other protected areas in their region.

The interviews were conducted in February 2011. All of them were recorded and transcribed into text form for analysing. All the interviews were carried out in Finnish to avoid the language barrier but translated later on into English alongside with analyzing. The average length of the interviews was approximately 45 minutes, the shortest being 29 minutes and the longest 55 minutes. Because the language or the body gestures of the interviewees are not in the main role in this research, the transcribing was done

quite freely. All the said sentences were written down, but no special characters were used and some repetition, filler words and voices of thinking or laughing, were left out.

Four of the interviews were done by Skype because the distance to the destination is long and it would have taken a lot of time to travel to five national parks all over Finland. In this case Skype was mainly used as a normal phone because the interviewees did not have the possibility to use it. However, the recording of the conversations was easier to accomplish than it would have been in a normal phone. This decision to use Skype was done for only practical and time-saving reasons but it had its disadvantages too. Phone interviews are typically associated with structured survey interviews because in a phone the body language, gestures and facial expressions are missing, which are usually an important part of qualitative interviews (Hirsjärvi & Hurme 2004, 64–65). Nevertheless, the interviews in this research were planned to do as close to a normal interview as possible. The interviewees were contacted beforehand, they were explained why the interview was done and then settled a time for the actual interview. The interview questions were also sent to the interviewees in advance, offering them an opportunity to prepare themselves for the interview.

Analysis, interpretation and conclusions of the material are the key elements of the research because in this point the results of the study are revealed. Before this the data needs to be first checked, then completed and organised. (Hirsjärvi et al. 2008, 216.) In my research I got the material that I wanted from the interviews but I needed to complete some parts, for example with different articles to improve the reliability. For organising the data I used transcribing to ease the saving of the material and also to ease the analysing process itself.

Analysis can be done in many ways depending on the material as well. They can be roughly divided into two main types which are explaining or understanding the material. Traditionally explaining is often used when analysing statistical data while understanding is used often for qualitative material. (Hirsjärvi et al. 2008, 219.) There are various methods to analyze qualitative material, such as discourse analysis which concentrates on the language, or ethnographic analysis which tries to describe the actions

of community. (Hirsjärvi & Hurme 2004, 155–160.) In this research the chosen method is content analysis, which means examining the text form material and trying to find similarities and differences from it. With content analysis it is possible to create a summary of the phenomenon which can be then connected to a larger context. In qualitative content analysis the material is first divided into smaller pieces and then organized again into a new text. (Tuomi & Sarajärvi 2002, 105–116.) In my research the interview material was first divided into themes according to the interview questions. The material was studied closely and on the basis of common and differentiating points I made my conclusions. In some cases I also combined data from the interviews to create tables and illustrate the interaction of different factors.

5.1 Reliability and Validity

When analysing the results of the study, the reliability and validity need to be discussed. Reliability means that the results are repeatable and not coincidental. Validity, however, measures the relevancy of the study. This means that the used methods actually measure those factors that it was supposed to measure. In qualitative method, estimating reliability and validity can sometimes be challenging as all the descriptions involving people and cultures are unique and there are no two cases alike. Nevertheless, these factors should somehow be discussed and in qualitative research for example explaining detailed the research process and conditions, will increase the reliability and validity of the study. (Hirsjärvi et al. 2008, 226–227.)

A concern doing the interviews was that there was no possibility to do all of them in person but four out of five were done by Skype. However, the interviews were carried out as close to normal interviews as possible. Therefore the interviewees were contacted beforehand by e-mail or phone and they also received the interview questions in advance to be able to prepare themselves. This clearly helped as the interviewees knew what they were talking about because the questions did not come as a surprise. Interviews were also recorded and transcribed to be able to go through the material more closely. Because the recorder needed to set next to the speakers, the quality of the recordings was unclear time to time. Luckily this applied only for few words and did not disturb understanding most of the conversation.

6 Results

The aim of this research is to highlight the opinions of the management and other staff of the national parks about crisis management. Another aim is to get an idea of the levels that the risks have been identified and to learn what kind of crisis management tools are being used in national parks. The questions were posed in such a way that they give a possibility for the interviewees to describe the situation in every park and bring out the differences between them. The next chapters present the results of the analysed interviews. The material is divided into themes and presented in the same order than the interview questions. Some of the questions are combined under the same theme to keep the structure logical.

6.1 Defining Crisis in the Context of National Parks

As discussed in the chapter 2, there are different definitions of the crisis or crisis management. The definition is varying between national parks, too. First of all, crisis management seems to be too strong word for many national parks in Finland. Managing risks is considered more appropriate.

In Patvinsuo National Park (NP) the Park Superintendent (11.2.2011) says that the crisis management is considered to be mostly related to the natural aspect:

> In Patvinsuo, crises are mainly connected to natural disasters and then we could think how to deal with them.

However, in Oulanka NP the Senior Planning Officer (4.2.2011) highlights also the human aspect:

> In our opinion we need to be prepared for different kind of things that can happen in the park whether it is caused by human or nature.

In Archipelago NP the Senior Planning Officer (7.2.2011) sees crisis more as a threat to the national park:

> In my opinion a crisis is a bigger accident that threats the national park.

When in Päijänne NP the Park Superintendent (9.2.2011) states that the visitor perspective is considered more relevant:

> I see the crisis management very much from the aspect of a customer and visitor safety, primarily.

In Pallas-Yllästunturi NP the Park Master (11.2.2011) thinks that crisis management is both a visitor and an environmental issue:

> The priority is the safety of the customers, but at the same time the visitor flows need to be managed so that they don't erode the nature. Therefore, the nature conservation is one important aspect as well. And also that the visitor flows are on safe areas.

The primarily opinion of most of the interviewees is that the incidents which have an effect on humans, either visitors, staff or locals, and also property, are the most possible risks to emerge a crisis. This could mean for example a fatality or a severe injury of a person. In Finland, the natural disasters are not so common because the location of the country does not include for example danger of volcano eruptions, earthquakes or tsunamis. As it was discussed in the chapter 2.1 there are different levels of crisis management and crises in national parks often would be smaller and concern mostly local level management. These facts needs to be taken into account when claiming that in fact this means that even a death of one person might already lead to a crisis in a national park.

Naturally, also the environmental issues are a concern when talking about crises and crisis management of national parks. Nevertheless, many hazards threatening the natural environment are only seen as a secondary threat to break out to a crisis. This is due to the fact that some natural hazards, for example forest fires, are actually a necessity for the nature and part of the normal cycle. But when it can have an effect on humans, it becomes a risk. (Park Master of Pallas-Yllästunturi NP 11.2.2011; Park Superintendent of Päijänne NP 9.2.2011.)

As a conclusion, a crisis in a national park could originate from a large unexpected incident or even a chain of smaller continuous events. Continuous natural disasters and also small accidents can have an effect on the reputation of the park and decrease the amount of visitors.

6.2 Possible Crises in Finnish National Parks

This topic was discussed in very different ways by the interviewees. It is natural because all the parks have features that are only typical for them.

According to Henderson (2007, 88–93.) environmental crises can be roughly divided into three groups:

1. Damages caused by tourism
2. Natural disasters
3. Technological disasters

These same three themes came up in the discussions with the representatives of the national parks as well which means that they apply also to Finnish national parks.

In Table 4 different natural disasters and technological hazards are classified by each national park. It is adapted on the basis of the conversations with the interviewees and the Disaster Category Classification introduced earlier in the chapter 2.3. Damages caused by the tourism are introduced after the natural and technological hazards in this chapter.

Table 4. Possible natural and technological disasters in national parks.

	Natural disasters				Technological disasters
	Meteorological	Hydrological	Climatological	Biological	
Oulanka National Park	Thunder storms, snowstorms, generic storms	Floods	Forest fires, grass fires, extreme winter conditions	Animal attacks, alien species	
Pallas-Yllästunturi National Park	Thunder storms, snowstorms, generic storms	Avalanches	Forest fires, grass fires, extreme winter conditions		
Saaristomeri National Park	Thunder storms, generic storms		Forest fires, grass fires	Alien species	Oil spills, accidents of boat traffic
Päijänne National Park	Thunder storms, generic storms		Forest fires, grass fires		Minor oil spills
Patvinsuo National Park	Thunder storms, generic storms		Forest fires, grass fires	Animal attacks	

Even though the threats are different in each park, there are few hazards which appear in all of them. Thunder storms, generic storms and also forest- and grass fires are typical small crises that can happen in all the parks. In the northern national parks also snowstorms and extreme winter conditions, such as pressure of snow, can have an effect on the park (Senior Planning Officer of Oulanka NP 4.2.2011). Although, there have been unusually lot of snow in southern Finland as well for couple of winters now, but the winter use in these southern parks is also less. Fundamentally, storms or fires are actually not crises, but depending on the magnitude and the damage they can result in as a crisis.

Pallas-Yllästunturi is the only national park of these chosen national parks which has fell areas and therefore, there is also a danger of avalanches during the winter as some of the tracks go in a gorge (Park Master of Pallas-Yllästunturi NP 11.2.2011). They occur mainly from early January to late April (Meteorological Institute 2010). Ava-

lanches are traditionally divided into loose snow avalanches and slab avalanches, of which the latter are most typical. In Finland, avalanches are annual but not nearly as common as in Sweden and Norway, where the mountains are already steeper, or on the Alps where they are almost daily. (Metsähallitus 2011.) The skiers looking for extreme and off-piste slopes are in most danger.

Oulanka NP is the only park where floods are a possible risk for crisis. It is due to the fact that there are many rivers and rapids on the area that usually flood in the spring. This is also a necessity for the wetland meadows which are dependent on the annual flooding. However, for example in spring 2010, the flood in Oulanka River was unexpectedly strong. (Senior Planning Officer of Oulanka NP 4.2.2011.)

In two of the parks animal attacks were also identified as a possible risk (Senior Planning Officer of Oulanka NP 4.2.2011; Park Superintendent of Patvinsuo NP 11.2.2011).

> Encounters (with bears) have happened, actually fairly often, but nothing more serious than that (Park Superintendent of Patvinsuo NP 11.2.2011).

There are four large carnivores inhabiting Finland: brown bear, Eurasian lynx, wolf and wolverine (Metsähallitus 2009). In Oulanka NP bears and lynxes have sometimes been seen from far but no dangerous encounters could be remembered. Danger of brown bears is also mentioned as a possible risk by the Park Superintendent of Patvinsuo NP (11.2.2011). The park is located on the area where the amount of bears is the densest in Finland. In eastern Finland, though, people are already used to live near them, even though encounters happen fairly often compared to the rest of the Finland. No accidents or injuries in encounters have happened between park visitors and bears though. (Park Superintendent of Patvinsuo NP 11.2.2011.) However, when reading and listening the stories of hikers, it is usually a desired and wanted experience to see one of these beasts because they usually prefer to stay away from humans.

The only national park of the chosen five with marine features is the Archipelago NP. According to the Senior Planning Officer of Archipelago NP (7.2.2011) this also cre-

ates risks that other parks do not have. The boat traffic in the Gulf of Finland is heavy and increasing all the time, as it is an important route for ships of many countries surrounding it. The increasing number of vessels also increases the risk of accident. The most concern is the heavy Russian oil tanker traffic which in case of an accident would also endanger the national park areas. However, all traffic, either commercial or passenger, increases the risk of an accidents as the fairways can be challenging for vessel that are not used to, for example, heavy ice conditions. (Uusiaho 2007.) There are various fairways going through the Archipelago NP and there is even a deep fairway in the western part of the park, which enables the access for big tankers to Naantali (Senior Planning Officer of Archipelago NP 7.2.2011). There are also minor concerns in Päijänne NP as a lake area about small oil spills, but as there are no big vessels and boats are mainly for recreational use, this probably will not create an issue (Park Superintendent of Päijänne NP 9.2.2011).

From the aspect of nature conservation, another concern for Archipelago NP is alien species that can come for example with foreign ships (Senior Planning Officer of Archipelago NP 7.2.2011). The same kind of concern is also in Oulanka NP where some species are feared to spread due to horse riding (Senior Planning Officer of Oulanka NP 4.2.2011). Other environmental concerns mentioned by the Senior Planning Officer of Archipelago NP (7.2.2011) are also pollution, acid rains and eutrophication. With some of the representatives of the parks, also the possible impacts of climate change were discussed. The general opinion seemed to be that the consequences are not clear yet, but if continued as same, it could be that increased extreme weather conditions enhance some of the risks. For example dry and hot summers can increase the risk of forest fires whereas shorter winters leave the ice cover on lakes thinner. (Senior Planning Officer of Oulanka NP 4.2.2011; Park Superintendent of Patvinsuo NP 11.2.2011.)

> We have already here in Oulanka and in other hiking areas, too, moved some of the snowmobile routes away from the lakes (Senior Planning Officer of Oulanka NP 4.2.2011).

Besides the natural and technological disasters, tourism also has its impact on national parks, especially on the environment, causing erosion, disturbance and overcrowding. Nevertheless, only the representatives of Pallas-Yllästunturi NP and Oulanka NP mentioned visitors as an actual threat to nature. This is most likely due to the fact that out of these five parks they have the most visitors. In fact, Pallas-Yllästunturi NP is the most visited national park in whole Finland. This fact also creates its own challenges according to the Park Master of Pallas-Yllästunturi NP (11.2.2011.):

> When number of visitors is 436 000 per year it creates high pressures for safety.

In addition, visitors can set themselves into danger too. Small accidents, such as tripping, slipping or strained ankle happen all the time and cannot really be considered as crisis, while, incidents such as getting lost during the winter can even lead to death. In Pallas-Yllästunturi NP there are cases every year when a hiker gets lost, especially during the autumn when it is dark. However, most of them are found in less than 24 hours. Growing number of international visitors also have an impact on the fact that getting lost cases have been increasing a bit as well. (Senior Planning Officer of Oulanka NP 4.2.2011; Park Master of Pallas-Yllästunturi NP 11.2.2011.)

6.3 Preventing Crises

As mentioned in the previous chapter, possible crises in the national parks vary a lot and therefore, also the actions to prevent them are different. Yet, crises cannot be actually prevented with certainty but they can be tried to be prevented. In Table 5, possible hazards are assembled together and what kind of major impacts they have and how these are tried to be prevented in a national park. The table is compiled based on the discussions with the representatives.

Table 5. Impacts and acts to prevent possible hazards in Finnish national parks.

Hazard	Major impacts	Acts for preventing
Forest and bush fires	injuries, fatalities, damaged infrastructure, accessibility, damaged nature, aesthetic concerns	fire and rescue plan, education of visitors, information during the event, signs
Storms	injuries, fatalities, damaged infrastructure, accessibility, damaged nature, aesthetic concerns	rescue plan, information during the event, accessibility for rescuers, signs
Floods	injuries, fatalities, damaged infrastructure, accessibility, damaged nature	informing customers, informing companies, signs, changing the course of tracks
Avalanches	injuries, fatalities, accessibility	education of visitors, checking the tracks, changing the course of tracks, signs, meteorological institute forecasts
Oil spills and other ship accidents	environmental damage, aesthetic concerns	education of staff
Alien species	environmental damage, deteriorated biodiversity	Management and Utilisation Plan, projects
Eutrophication, acid rains, pollution	environmental damage, deteriorated biodiversity, decreased visitor experience	Management and Utilisation Plan, projects
Growing number of visitors	litter, disturbance of flora and fauna, erosion, environmental damage, increased individual accidents	Strategy for Nature Tourism, managing the tourism flows, routing the tracks, education of visitors, Hiker's ABC
Quick change of weather in the fell	getting lost, frostbites, individual accidents	clear and logical track markings, Strategy for Nature Tourism, education of visitors, Hiker's ABC
Animal attacks	fatalities, injuries	education of visitors, population management plans

Forest and bush fires can basically happen in any national park in Finland. The impacts could concern damaged infrastructure and nature but injuries of people and fatalities could be possible as well. Damaged infrastructure can affect the accessibility of the park and therefore complicate the rescue operations (Park Superintendent of Päijänne NP 9.2.2011). Obviously, from the aspect of tourism also aesthetic concerns might be a threat because it could decline the number of visitors and profits of the park and local area. According to the Park Superintendent in Patvinsuo NP (11.2.2011), there is a

concern of the large forest fires from the Russian side that could spread to the national park close to the border when the wind is right. For example last summer there was vast forest fires in Russia close to the border and many areas in Finland were already covered by thick smoke. These kind of incidents could be danger for respiratory as well. The most important means for preventing crisis originating from the fires is the fire and rescue plan that all of the parks are obliged to compose. The plan contains for example what is the fastest way to evacuate people if needed, what are the shortest routes for rescuers and the contact details of the persons who need to be contacts in case of emergency. (Park Superintendent of Patvinsuo NP 11.2.2011.) In addition information to the visitors is important for example preventing human lit fires because of lacking of camping skills. It is also important to inform the visitors via internet, media or signs on site during the fire to prevent more accidents happening. (Senior Planning Officer of Oulanka NP 4.2.2011; Park Master of Pallas-Yllästunturi NP 11.2.2011.)

Like fires, storms also have similar impacts. The consequences are not necessarily as severe though, because they quite often are a result of fallen trees. The rescue plan also applies to different storms as well as information during and after the event. It is highly important that the park is also accessible for rescuers because as said by the Park Superintendent of Päijänne National Park (9.2.2011):

> If the rescuer injures himself, who rescues the rescuer then?

Floods can cause similar impacts as fires and storms. The main role is again in informing visitors especially during the flood. It is also important to inform the companies who normally use the flooding river for example for rafting and canoeing. These extreme conditions can actually cause life-threatening situations as stated by the Senior Planning Officer from Oulanka NP (4.2.2011):

> You could have easily got killed if you didn't know what you were doing.

A way to reduce the risk of incidents is to change the routing of tracks to safer areas and indicate with signs that the area is not safe. In Oulanka NP they have also been

carrying out so called safety rafting before the rivers are used for commercial rafting. During this safety rafting representatives from Oulanka NP, companies and public authorities, such as department of rescue services, go through the rapids and check that they are safe for rafting. (Senior Planning Officer of Oulanka NP 4.2.2011.)

Avalanches in worst case can cause injuries and fatalities but also complicate the access within a park. The education is once again in an important role so that the people are aware of the risks when they go off the marked routes. The routes are also being checked during the avalanche season and the tracks are changed if needed to safer places. Meteorological Institute also gives warnings of the avalanche situation during the season. (Park Master of Pallas-Yllästunturi NP 11.2.2011.)

Oil spills and other ship accidents can be an actual threat in Archipelago NP. However, the concern is more environmental and also aesthetic. The concern is actually not insignificant either:

> Once we have set off because some oil was detected in connection with an accident. We went to check the situation but there were no larger amounts of oil. There were some small discoveries but can't really mention this as a crisis. We monitored the situation for couple of days in case that we needed to react and start cleaning the shores. (Senior Planning Officer of Archipelago NP 7.2.2011.)

From the aspect of national park, the situation of an oil spill is quite problematic because there is not much they can do for preventing oil spills. It is still possible to minimize the factors causing the actual crisis and for example train the staff. For example, part of the personnel has already been on an oil spill response course organized by WWF. (Senior Planning Officer of Archipelago NP 7.2.2011.)

Other concerns that are external for national parks are invasive alien species, eutrophication, acid rains and pollution that can be threats mainly to the environment and biodiversity. Regarding the environmental concerns all of the national parks should have composed the Management and Utilisation Plan that includes acts to preserve natural values. The Management and Utilisation Plan is composed for all the natural protec-

tion areas, wilderness and hiking areas and Natura 2000 areas managed by Metsähallitus. The plan takes into account the ecological, economical and social sustainability and tries to fit together the objectives of nature conservation and recreational use. It analyses for example the present state of the area, assess the future development and tries to recognise the threats. Oulanka NP and Pallas-Yllästunturi NP both have the Management and Utilisation Plan that is more recently made than 2004. For Päijänne NP the plan is in progress at the moment. (Metsähallitus 2011c.)

The growing number of visitors is a concern especially in the most popular national parks such as Pallas-Yllästunturi NP and Oulanka NP. Visitors can cause litter, disturbance of flora and fauna, erosion and other environmental damage. Obviously, growing number of visitors also means more individual accidents. (Park Master of Pallas-Yllästunturi NP 11.2.2011; Senior Planning Officer of Oulanka NP 4.2.2011.) One of the main tools for controlling tourism flows together with the Management and Utilisation Plan is the Strategy for Nature Tourism. These two are partially overlapping with each other.

The Strategy for Nature Tourism is composed for Pallas-Yllästunturi NP, Archipelago NP and also for Patvinsuo NP which is a part of Koli–Ruunaa's Strategy for Nature Tourism. The strategy is composed for those areas where the nature tourism is significant and it defines the aims and actions to use and develop the area in sustainable way. Composing the Strategy for Nature Tourism is also a part of the process becoming a member of PAN Parks network. The strategy includes for example the importance of managing tourism flows by dividing the areas into zones within the national park. (Metsähallitus 2010l; Metsähallitus 2010m.) In Oulanka NP have been also noticed that the most popular routes are situated on those areas, which also have a lot of endangered species:

> They seem to favour same areas. It would be easy if the valuable species would be middle of nowhere and the tracks would go through a basic forest where there would be not much threat for species. However, in Oulanka the riverside is very popular for visitors and it is also the area where even the most endangered species grow as well. (Senior Planning Officer of Oulanka NP 4.2.2011.)

Education of the tourists is also in an important role so that the visitors are aware of their impact on the nature. To decrease individual accidents of visitors it is important that their camping skills are updated and they are aware of the suitability of the area regarding their own skills and fitness. (Senior Planning Officer of Oulanka NP 4.2.2011.) In fact, there is a lot of information about hiking and other activities in the recreational areas in the Internet sites of Metsähallitus, www.outdoors.fi (or www.luontoon.fi in Finnish). A guide for visitors, called Hiker's ABC, can be also found from these sites. It includes a lot of information about camping, hiking and safety issues, for example what to do in case of getting lost or an avalanche. However, this part of the sites is only in Finnish. Even small things can be help avoiding accidents. For example the Park Master in Pallas-Yllästunturi NP (11.2.2011) tells that the wood for the campfires in the park are already chopped because the axe as a tool is quite unfamiliar for many these days.

A quick change of weather especially on fells can easily cause accidents as well. To avoid this, the tracks need to be marked clearly and logically (Park Master of Pallas-Yllästunturi NP 11.2.2011). Once again, visitors as well need to be skilled, informed and using appropriate equipment.

6.4 Preparing for the Crises

All the crises cannot be prevented as they often arise from the combination of coincidence, surprise or human error.

> We cannot be prepared so that a fallen tree in a storm don't kill or injure anyone, except by chopping down all trees which is not a real option. So, the options that would be nearly 100 percent sure cannot really be used. This leads to the fact that at some point something will happen anyway. (Park Superintendent of Päijänne NP 9.2.2011.)

Therefore, the possible risks and crises need to be prepared for. For example, the personnel of Archipelago NP have been already having meetings together with authorities in case of an oil spill. However, they also wish they could be more involved in the actual practicing as well. (Senior Planning Officer of Archipelago NP 7.2.2011.) Practic-

ing in advance would especially ease the communicating during the crisis or ease the implementation of the evacuation plans. Park Master of Pallas-Yllästunturi NP (11.2.2011) also highlights the cooperative planning with rescue authorities. Every year the park, its rescue routes and its buildings are inspected together with the rescue department. There are also set coordinates for helicopter close to the main wilderness huts and cabins. In sparsely populated Lapland where the distances are long Rescue Helicopter ASLAK is an important part of rescue network (Lapin Pelastushelikopterin Tuki Ry 2011).

Another important aspect is the preparedness of the staff. This means both physical and mental preparedness. Physical side includes for example valid first aid courses and skills handling relevant equipment such as saws etc. Mental preparedness is as important as physical because if the issues are not thought and discussed it might be too much a shock when a crisis occurs. (Park Superintendent of Päijänne NP 9.2.2011.) The Park Superintendent of Päijänne NP (9.2.2011) also reminded that:

> Management can prepare statutory plans, rescue plans and all these, but when something happens, the plan itself does not do anything, it is the person who opens it.

6.5 Responding to the Crises

All of the interviewees considered that the key for responding to crises is to react and act instantly. Informing, reporting and communicating are the main tasks of national park management, so that the visitors are informed by the national park itself or through media.

In fact, communicating is important in all the phases of crisis. Visitors can be informed about abnormal situations using the Metsähallitus' own channels such as Internet sites or visitor centers. They can be also informed in TV, radio or in national and local newspaper. (Senior Planning Officer of Oulanka NP 4.2.2011.)

All the representatives of the national parks also agreed with an importance of another key point, which is the co-operation with different authorities such as police and fire

and rescue department. In Pallas-Yllästunturi NP cooperation includes also border guard and in Archipelago NP coast guard and sea rescue. In fact, if a crisis occurs in a national park, one of these authorities will take the lead depending on the incident. For example, in case of someone getting lost in a national park, the police will be the responsible of the search. This means that the personnel of the national park will then follow their instructions by helping and guiding the shortest routes for the rescuers to the places where the help is needed. However, parks also have some equipment to deal with for example small forest fires. (Park Master of Pallas-Yllästunturi NP 11.2.2011; Senior Planning Officer of Archipelago NP 7.2.2011).

In Archipelago NP, besides the fire equipment they also have peat sacks in the boats to be able to give so called first aid for nature and start cleaning shores and animals. Actual response equipment the national park does not have. (Senior Planning Officer of Archipelago NP 7.2.2011.) However, in coastal areas and inland the responsibility of dealing with oil spills is on the local departments of rescue services. Half of the Finnish departments of rescue services are located on the sea shore and all of them have their own strategy for marine pollution accident. They also have more equipment such as coastal booms. Finnish Environment Institute (SYKE) is the governmental pollution response authority if the incident happens at open sea or whenever the severity so requires. It is also responsible of the Finnish pollution response vessels. In a case of an accident also border guard, police, defensive forces, The Finnish Maritime Administration and Finnish Institute of Marine Research will give executive assistance if needed. (WWF 2006.)

6.6 Recovery

After the crisis the recovery phase starts. In practice this means in many cases checking the damages and clearing the destructions. However, when it comes to national parks, all the fallen or burnt trees are left into the park as they are part of the nature and its biodiversity. This phase also includes making reparations such as fixing damaged bridges, tracks or lodges in the park. (Park Superintendent of Päijänne NP 9.2.2011; Park Superintendent of Patvinsuo NP 11.2.2011.)

Communicating and informing are also important after the crisis. Visitors need to be informed for example with signs that the routes have been moved or difficult to walk because of a flood, forest fire or storm. Visitors also need to be informed when the situation is settled and everything is working normally again. (Park Superintendent of Patvinsuo NP 11.2.2011; Senior Planning Officer of Oulanka NP 4.2.2011.) However, informing through media after the crisis can be more challenging than during the crisis as noticed by the Senior Planning Officer from Oulanka NP (4.2.2011):

> Media likes when there is something like "massive flood, bridges are missing, this is very rare" going on, but when everything is ok again, no one is really interested to release news like this anymore. Then there is small news somewhere that the flood in Oulanka has lowered and the tracks are accessible again.

In some cases also some mental treatment of staff, rescuers or visitors might be needed especially if there have been any fatalities (Park Superintendent of Päijänne NP 9.2.2011). According to the Park Master of Pallas-Yllästunturi NP (11.2.2011), when more stakeholders have been involved for example searching for a lost person in the fell, they usually gather together after the person has been found:

> If the case has had a happy ending and the person has been found within 24 hours, we go through the case with the rescue department. Usually I have conversation with the Fire Chief about how it went, we thank the participants and that's it then.

In case of a major accident, the Park Master (11.2.2011) also mentions that at some point the involved organizations would most probably gather together as well to make a summary of the incident.

6.7 Learning from the Crises

Not all the impacts of crisis are necessarily negative. They can lead for example to improvement of current policies or to development of partnerships and co-operation on the area. As pointed out by the interviewee from Pallas-Yllästunturi NP, there is always something to learn from every crisis. For example in Pallas-Yllästunturi NP about fifty years ago a girl at the age of 5 got lost and was found drowned a day later, but the inci-

dent is still freshly remembered by the locals. After this unfortunate incident Voluntary Rescue Service (VAPEPA) in Finland was established. (Park Master of Pallas-Yllästunturi NP 11.2.2011.)

There was a large flood in Oulanka NP in spring 2010 which cut off some routes and even took away one bridge. The flood was large compared to the previous years and it tested the capability of the park's crisis communication. Senior Planning Officer from Oulanka NP (4.2.2011) says that:

> We have probably learned that, this far we have been used to try to prevent certain things with communicating and we have come to the result that it needs to be more systematic…Nowadays everything should be black on white, not like that someone knows something and other one something else, like the things might have done before.

In Patvinsuo NP the learning case concerned damages after a storm. The Park Superintendent (11.2.2011) told that in future they could take more into consideration the location of the service equipment that the fallen trees could do as little damage as possible.

After a crisis some of the strategies and plans might need to be modified if they did not work as wanted. Though not happened in Finland, the oil catastrophe on Gulf of Mexico also opened the eyes in Finland as well. After the explosion of the oil rig of British Petrol the politicians have been more interested about developing the environmental emergency response in Finnish waters too. After major accidents legislation is often tightened and better technology introduced. (YLE 2010.) This shows that is possible to learn from others as well, not only from the own mistakes.

However, as suggested in the PPRR Crisis Management Model in chapter 2.4, all the stages of crisis are interrelated to learning. This means that the actual crisis does not need to happen before it can be learned from.

6.8 Responsibility Issues

According to the interviewees, the main responsibility for the safety of the visitor has the visitor himself, unless he is participating an organised tour, when the company usually have its own responsibilities. Yet, the common opinion of all the interviewees was also that the national park is responsible of its own infrastructure and general safety in the park and the infrastructure is supposed to be built so that they are strong enough, maintained and do not hurt anyone. In addition, Planning Officer from Oulanka NP (4.2.2011) regards that:

> In a way it is on our responsibility that people know where they are going to. If they don't ask anyone and make their own decisions, we can't reach everybody. But that the people would know what kind of tracks there are, that they would know how to do fire and if there is a forest fire warning, they would know what it means. And if there is an exceptional situation going on in the park, it is clearly on our responsibility to inform about it.

As mentioned before, companies are responsible of their customers. Companies who want regularly use the national parks for their activities also need to make a contract with the national park (Park Superintendent of Päijänne NP 9.2.2011). The contract includes for example guidelines for sustainable nature tourism that the company need to agree with:

1. Natural values are preserved and all activities promote nature conservation.
2. The environment is subjected to as little pressure as possible.
3. Local traditions and cultures are respected.
4. Visitors increase their understanding and appreciation of nature and cultures.
5. Improved recreational facilities are provided for visitors.
6. Visitors are encouraged to enjoy both mental and physical recreation.
7. Local economies and employment are promoted.
8. Publicity materials are produced responsibly and carefully.
9. Activities are planned and organised co-operatively.
   (Metsähallitus 2010n.)

These guidelines are one way to control the companies using the national parks and make sure they have same kind of objectives regarding the sustainable tourism in the area. This minimizes the risk that the activities of a careless entrepreneur could also impact the reputation of a whole park.

7 Conclusion and Suggestions for the Future

National parks are an important part of Finnish nature conservation network, but they also create a basis for recreational use in Finland. Therefore, preserving both of these values is the main task of the national parks. Typically, Finland has been considered as a peaceful country that not many natural disasters can threat. However, if the possible risks are not taken into account even small incidents can create a crisis if the circumstances are right. As shown in this research there are various risks that can cause a crisis in Finnish national park. As these concern mainly local levels, the incident does not need to be large to cause a crisis. Anyway, it is better to be a step ahead than learn from your own mistakes. Crisis management is something that should be taken increasingly into consideration especially when more tourism is involved, as nature itself rarely creates a crisis unless there are humans involved either as generators or victims. Ecotourism and nature tourism are increasing trends within tourism sector, but it comes along with questions such as what is the carrying capacity of the national parks or how can the tourism be controlled?

The crises in Finnish national parks can be divided into three categories: Damages caused by tourism, natural disasters and technological disasters. Crises that can occur in Finnish national parks are mainly environmental. Forest fires and different kind of storms can threat all the parks but there are also some specific risks that only apply to one or two parks. For example avalanches are possible in Pallas-Yllästunturi NP whereas an oil spill could happen in Archipelago NP. Mainly the hazards in the Finnish national parks can cause damages in infrastructure but in a worst case also injuries and fatalities. Many of the possible natural disasters, such as forest fires or floods, are not essentially crises but their impact on people and infrastructure creates a risk for crisis. Climate change is another theme that came up in the discussions with the interviewees. The impacts of it are not quite clear but the extreme weather conditions are feared to increase the risk of crises as well.

National parks are also becoming more important in tourism sector and the number of visitors in the Finnish national parks is growing. This brings in new challenges as the

tourists have their impact on national parks as well. Especially their impact on environment, such as erosion, disturbance of nature and overcrowding are facts that already concern bigger parks in Finland like Pallas-Yllästunturi NP and Oulanka NP. However, the tourism should be increasingly taken into account also in smaller parks. In the national parks where the number of visitors is lower tourism is not considered as such a big risk yet. However, if the increase of visitors keeps on growing, it is possible that the tourists start to look for new areas and national parks that are not yet so crowded. This leads to the fact that impacts of tourism would start to show more and more in these national parks, too. As the amount of international visitors is increasing as well, it is also important to pay attention to them. The internet sites of Metsähallitus and national parks are already comprehensive and lot of information can be found also in English. But in case of a crisis in a park, through which channels the international travellers can be reached as they rarely follow local or national news? This is something that could be thought within the national park management.

Also after the earthquake and tsunami, which also caused the nuclear power plant accident in Japan in March 2011, there has been a lot of discussion in Finland, too, about nuclear power and its impacts. For example, newspaper Aamulehti wrote that Gulf of Finland is one of the busiest routes for transporting uranium. A fire on a ship would be the worst case scenario as the uranium hexafluoride gasifies already in fairly low temperatures and the airflows could take the poisonous cloud over southern Finland. (Taloussanomat 2011.) Could this be a new risk for national parks of the southern Finland, too? Actual risk or not, in crisis management it is important to be aware of all the factors and also their changes.

The prevention of the possible risks is the key element in the Finnish national park management. It includes especially training of the staff and informing customers. Communication is an important theme that was brought up in all of the discussions with the representatives of the national parks. Communication is actually a significant factor on all the stages of crisis. It can be used to prevent crisis by educating and informing visitors but also during the crisis when people need to be informed about what is going on in the park. In addition, it is an important tool after the crisis to in-

form visitors about the stabilized situation again. As the communication seems to be such an essential part of the crisis management in Finnish national park, the importance of a communications plan is also highlighted. Many issues related to communications are managed in the way that they are always used to, but there is not necessarily actual written plan for this. Written plans would make the work of current staff easier, but also the introduction of crisis management to the new workers more fluent.

When it comes to the responding to the crisis, all the interviewees agreed that they need to be reacting as quickly as possible. In terms of national parks the crisis management is mainly focused on communications as in case of a large natural or technological disaster, other authorities such as fire and rescue department, police or border control are responsible of most of the actions. The cooperation with authorities is also considered as one of the key factors of crisis management. However, actual practising with the authorities would ease the implementation of the already composed plans but also give confidence for the staff in an actual situation.

The surprising fact of this study was the variety of different answers even though all the national parks are managed by Metsähallitus. However, interviewees are working in different positions within the organisation and the features of the parks are different which might explain the distinctions. These differences could be also an advantage for Metsähallitus, as different parks are dealing with different kind of risks. National parks and Metsähallitus could benefit by sharing these diverse experiences with each other and the management and personnel of the parks could change ideas about crisis management, too. Also by creating a similar crisis management model for all of the national parks would save a lot of time. Thus, a suitable crisis management model for all the parks would not need to be composed separately from the beginning. This means creating a common procedure between parks, however, the crisis management model of each park should have some specific features depending on the park and its location or nature.

A suggestion for further study could be actually creating a common database or a platform for national parks regarding the crisis management. In this database information

about potential and already happened crises could be compiled as one document. Different factors, such as what time of the year the crises occur or in which part of the park they happen most likely, could be examined. This would ease the crisis management and long-term planning of the national parks, allowing the park management to develop an adjusted crisis management model for each national park depending on its features. Consequently, it would help responding to the crises. In addition, it could offer valuable data for scientist studying for example climate change and its impacts on national parks and environment.

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Attachments

Attachment 1. Disaster Category Classification

Disaster Generic Group	Disaster Group	Disaster Main-Type	Disaster Sub-Type	Disaster Sub-sub Type
Natural Disaster	Geophysical	Earthquake	Ground shaking	
			Tsunami	
		Volcano	Volcanic eruption	
		Mass movement (dry)	Rockfall	
			Avalanche	Snow avalanche
				Debris avalanche
			Landslide	Mudslide Lahar Debris flow
			Subsidence	Sudden subsidence
				Long-lasting subsidence

Disaster Generic Group	Disaster Group	Disaster Main-Type	Disaster Sub-Type	Disaster Sub-sub Type
Natural Disaster	Meteorological	Storm	Tropical storm	
			Extra-tropical cyclone (Winter storm)	
			Local/Convective storm	Thunderstorm/ Lightning
				Snowstorm/Blizzard
				Sandstorm/Duststorm
				Generic (severe) storm
				Tornado
				Orographic storm (strong winds)

Disaster Generic Group	Disaster Group	Disaster Main-Type	Disaster Sub-Type	Disaster Sub-sub Type
Natural disaster	Hydrological	Flood	General (river) flood	
			Flash flood	
			Storm surge/coastal flood	
		Mass movement (wet)	Rockfall	
			Landslide	Debris flow
			Avalanche	Snow avalanche
				Debris avalanche
			Subsidence	Sudden subsidence
				Long-lasting subsidence

Disaster Generic Group	Disaster Group	Disaster Main-Type	Disaster Sub-Type	Disaster Sub-sub Type
Natural disaster	Climatological	Extreme temperature	Heat wave	
			Cold wave	Frost
			Extreme winter conditions	Snow pressure
				Icing
				Freecing rain
				Debris avalanche
		Drought	Drought	
		Wild fire	Forest fire	
			Land fires (grass, scrub, bush, etc. ...)	

Disaster Generic Group	Disaster Group	Disaster Main-Type	Disaster Sub-Type	Disaster Sub-sub Type
Natural disaster	Biological	Epidemic	Viral Infectious Diseases	
			Bacterial Infectious Diseases	
			Parasitic Infectious Diseases	
			Fungal Infectious Diseases	
			Prion Infectious Diseases	
		Insect infestation	Grasshoper/Locust/Worms	
		Animal stampede		

Disaster Generic Group	Disaster Group	Disaster Main-Type	Disaster Sub-Type	Disaster Sub-sub Type
Natural disaster	Extra-terrestrial	Meteorit/Asteorit		

Source: Below, R., Wirtz, A. & Guha-Sapir, D. 2009. Disaster Category Classification and peril Terminology for Operational Purposes. Common accord Centre for Research on the Epidemiology of Disasters (CRED) and Munich Reinsurance Company (Munich RE). CRED. Brussels.

Attachment 2. Interview questions in Finnish

HAASTATTELUKYSYMYKSET

1. Voitko kertoa lyhyesti mitä teet työksesi? Mikä on asemasi kansallispuiston hallinnassa?
2. Määrittele mitä mielestänne kriisinhallinta kansallispuiston näkökulmasta tarkoittaa.
3. Kuvaile mitä mahdollisia kriisejä voi tapahtua kansallispuistossanne.
4. Miten näitä kriisejä pyritään estämään?
5. Miten mahdollisiin kriiseihin varaudutaan?
6. Millaisia työkaluja teillä on kriisien hoitamiseen?
7. Kuvaile mitä kriisien jälkihoitoon kuuluu.
8. Millaisia kriisejä kansallispuiston alueella on sattunut?
9. Mitä olette oppineet näistä kriiseistä?
10. Kenen vastuulla turistien turvallisuus kansallispuistossa on? Mikä on teidän osuutenne kriisinhallinnassa?
11. Oletteko ohjeistaneet yrityksiä jotenkin kriisinhallintaan liittyen?

Attachment 3. Interview questions in English

INTERVIEW QUESTIONS

1. Would you shortly tell me what are you doing for work? What is your position in the national park management?
2. Define what crisis management means in terms of national park.
3. Describe what kind of crises can occur in national park.
4. How the crises are prevented?
5. How are you prepared for possible crises?
6. What kind of tools you have for handling the crises?
7. Describe what the recovery of crisis includes.
8. What kinds of crises have occurred in national park?
9. What have you learned from these crises?
10. Who is responsible of the tourists of national park? What is on your responsibility in crisis management?
11. Have you given any instructions considering the crisis management for the companies?